

# A new species of *Lernaea* (Copepoda: Cyclopoida) from Papua—New Guinea

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## Introduction

In his recent synopsis of the genus *Lernaea* Linn., 1758 Kabata (1979) recognized 37 species. All of these parasitise freshwater fishes although some are also known to occur on amphibian tadpoles. Eleven species have been reported from India, S.E. Asia and the Far East (Kabata, 1979) but no records of *Lernaea* from the Australasian zoogeographic region have as yet been published. In October 1979 some *Lernaea* were collected by Dr I. L. Owen of the Central Veterinary Laboratory, Port Moresby, Papua-New Guinea. The specimens were found to represent a new species which is described in detail below. Specimens were examined and dissected in lactophenol. Drawings were made using a camera lucida and terminology is adapted from Kabata (1979).

## Description of new species

### *Lernaea papuensis* n. sp.

Postmetamorphosis adult female (Fig. 1A); cephalothorax small, hemispherical, bearing antennae and mouthparts ventrally and with nauplius eye visible through integument dorsally (Fig. 1B). Holdfast apparently comprising 6 subequal arms, probably representing an unbranched dorsal pair and a ventral pair, with each member being divided at its origin into 2 equal branches. Holdfast usually arranged in anteroposterior plane, sometimes dorsal pair pass perpendicularly into dorsoventral plane (Fig. 2D). Holdfast arms of largest paratype (Fig. 2E) distorted and overlapping due to site on host. Neck, comprising second to fourth leg-bearing somites, passing imperceptibly into genital somite. Neck expanding in girth posteriorly but marked with conspicuous swellings, each delimited by constrictions, anterior to legs 2 and 3. Genital somite with simple hemispherical genital prominence posteriorly. Abdomen conical, unsegmented and bearing uropods distally. Total body length from anteriormost tip of holdfast to posterior tip of uropod ranging from 5.4 to 10 mm.

First antenna (Fig. 1C) indistinctly 4-segmented; segments 1 to 4 bearing 10, 3, 4, and 10 armature elements respectively. Second antenna (Fig. 1D) indistinctly 3-segmented, segments 1 and 2 unarmed and comprising half total length of appendage, segment 3 with 3 setae on posterior margin, and a claw-like spine, 5 slender setae and 1 setule distally. Labrum (Fig. 1B) a flattened triangular plate, overlying mandibles and first maxillae. Second maxilla (Fig. 1E) 2-segmented with 2 curved claws apically. Maxilliped (Fig. 1F) basal segment with small papilla, armed with an apical setule, on distal part of medial margin; terminal segment with 5 strong curved spines apically.

Thoracic legs 1 to 4 more or less regularly spaced along body; leg 1 situated on ventral surface of cephalothorax at posterior border of cephalothorax (Fig. 1A 1), legs 2 to 4 (Fig. 1A 2-4) on ventral surface of neck. Legs biramous with 3-segmented rami (Figs 1G, 2A-C), armature formula as follows:



Fig. 1 *Lernaea papuensis* n. sp. female. A, Holotype, dorsal; B, paratype head and cephalic appendages, ventral; C, first antenna, ventral; D, second antenna, ventral; E, second maxilla, posteroventral; F, maxilliped, posteroventral; G, first leg, anterior; H, uropods, dorsal. Scales 50  $\mu$ m unless otherwise stated.

	coxa	basis	endopod	exopod
Leg 1	0-1	1-1	0-1;0-1;4,II	I-1;I-1;II,5
Leg 2	0-1	1-0	0-1;0-2;4,II	I-1;I-1;III,5
Leg 3	0-1	1-0	0-1;0-2;4,II	I-1;I-1;III,5
Leg 4	0-1	1-0	0-1;0-2;3,II	I-1;I-1;III,5

Several long pinnules present near mediiodistal angle of basis of legs 2 to 4. Lateral margins of all endopod segments armed with pinnules. Leg 5 not observed.

Uropods (Fig. 1H) subcylindrical, about 1.5 times longer than wide and bearing a very long plumose seta on distal margin, a short lateral seta, dorsal seta and posterolateral seta.

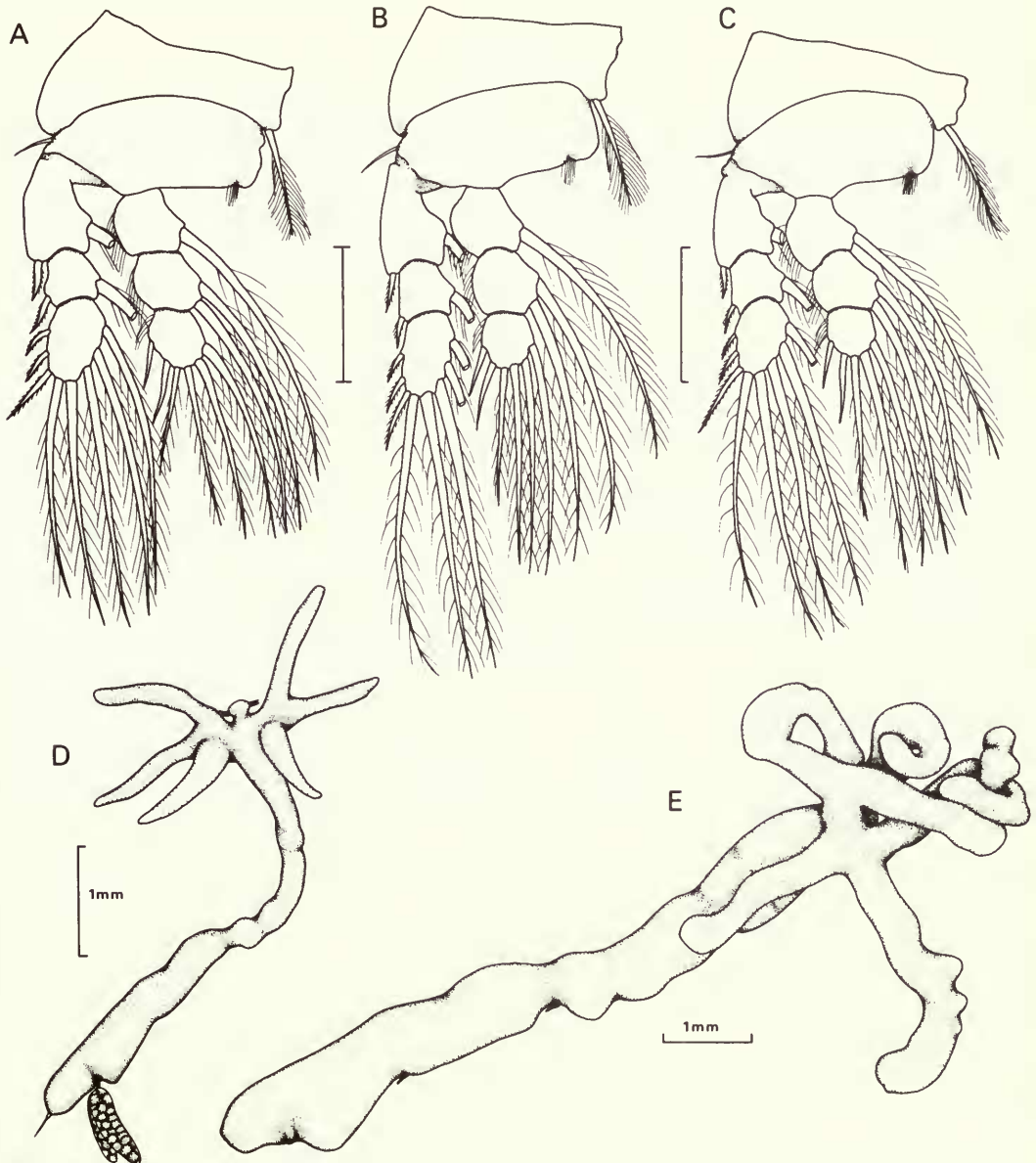


Fig. 2. *Lernaea papuensis* n. sp. paratype female. A, second leg, posterior; B, third leg, posterior; C, fourth leg, posterior; D, smallest ovigerous paratype, dorsal; E, largest paratype, dorsal. Scales 50  $\mu$ m unless otherwise stated.

MATERIAL EXAMINED. Holotype ♀, 9 paratype ♀♀ from gill arches, pectoral fins and body surface of Jardine's Barramundi, *Scleropages jardini* Kent, caught in the Bensbach river, Western Province, Papua-New Guinea. BM(NH) Reg. Nos holotype 1980. 122, paratypes 1980. 123-131.

REMARKS. Although the size and shape of the holdfast of *Lernaea* species is variable with age and especially with position on the host (Fryer, 1961) it is the gross morphology of the holdfast and trunk which provides virtually all the characters used to distinguish between the species (Harding, 1950). This situation arises because of the high degree of uniformity of appendage structure and armature throughout the genus (Harding, 1950; Kabata, 1979).

The new species differs from all others in the possession of a holdfast comprising 6 slender, elongate arms which are more or less equal in length. The holdfast of *L. papuensis* could be derived from the condition exhibited by *L. senegali* Zimmermann, 1923 which possesses a pair of simple dorsal arms and a pair of ventral arms which are branched near their tips. The 4 ventral arms of the holdfast of *L. papuensis* are probably homologous with the branched ventral pair of *L. senegali* but they are branched at their bases. The genital prominence is hemispherical in both the new species and *L. senegali*. Another important taxonomic character of *L. papuensis* is the shape of the neck. The conspicuous expansions of the neck, delimited by constrictions, anterior to leg 2 and particularly to leg 3, are more marked in this species than in the majority of *Lernaea* species.

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### References

- Fryer, G. 1961. Variation and systematic problems in a group of lernaeid copepods. *Crustaceana* 2 : 275-285.
- Harding, J. P. 1950. On some species of *Lernaea* (Crustacea, Copepoda: Parasites of fresh-water fish). *Bull Br. Mus. nat. Hist. (Zool.)* 1 : 1-27.
- Kabata, Z. 1979. *Parasitic Copepoda of British Fishes*. Ray Society, London. 468 pp, 199 pl.

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